

#2,0.2
+

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.



Substitute for form 1449B/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 2 of 4

Complete if Known

Application Number	09/963,983
Filing Date	09/25/2001
First Named Inventor	Zumbrunnen
Group Art Unit	1723
Examiner Name	unknown
Attorney Docket Number	CXU-336PA

RECEIVED
FEB 15 2002
TC 1700

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
San	C	Michael Ellison, David Zumbrunnen, Bridgette Gomillion and Jiong Wang -- "CHAOTIC MIXING IN EXTRUSION-BASED MELT SPINNING OF FIBERS" National Textile Center Annual Report: Nov. 1999 entire document	
	D	Michael Ellison and David Zumbrunnen -- "CHAOTIC MIXING IN EXTRUSION BASED MELT SPINNING OF FIBERS" -- National Textile Center Research Briefs: April 1999 entire document	
	E	Michael Ellison and David Zumbrunnen -- "CHAOTIC MIXING IN EXTRUSION BASED MELT SPINNING OF FIBERS" National Textile Center Research Briefs: August 1998 entire document	
	F	Michael Ellison and David Zumbrunnen -- "CHAOTIC MIXING IN EXTRUSION BASED MELT SPINNING OF FIBERS" National Textile center research Briefs: March 1998 entire document	
	G	Michael Ellison and David Zumbrunnen -- "CHAOTIC MIXING IN EXTRUSION BASED MELT SPINNING OF FIBERS" National Textile center research Briefs: August 1997 entire document	
	H	Y.H. Liu and D.A. Zumbrunnen -- "TOUGHNESS ENHANCEMENT IN POLYMER BLENDS DUE TO THE IN-SITU FORMATION BY CHAOTIC MIXING OF FINE SCALE EXTENDED STRUCTURES" Journal of Materials Science: April 1999 entire document	
	I	D.A. Zumbrunnen, K.J.C. Miles and Y.H. Liu -- "aUTO-PROCESSING OF VERY FINE-SCALE COMPOSITE MATERIALS BY CHAOTIC MIXING OF MELTS" Composites Part A Vol. 27A: 1996	
	J	Michael Ellison and David Zumbrunnen -- "CHAOTIC MIXING IN EXTRUSION BASED MELT SPINNING OF FIBERS" National Textile center research Briefs: Nov. 1996 entire document	
	K	R.I. Daniescu and D.A. Zumbrunnen -- "CREATION OF CONDUCTING NETWORKS AMONG PARTICLE IN POLYMER MELTS BY CHAOTIC MIXING" Journal of Thermoplastic Composit Materials: July, 1998	
	L	Y.H. Liu and D.A. Zumbrunnen -- "EMERGENCE OF FIBRILLAR COMPOSITS DUE TO CHAOTIC MIXING OF MOLTEN POLYMERS" Polymer Composites, Vol. 17, No. 2: April 1996	
	M	R.I. Danescu and D.A. Zumbrunnen -- "ASSESSMENT OF CHAOTIC MIXING AS A MEANS TO PRODUCE ELECTRICALLY CONDUCTING POLYMER COMPOSITS WITH METALLIC POWDERS" ANTEC Conference: 1996 entire document	

Examiner
Signature

San

Date

Considered

05 Aug 2003

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional).

² Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

+



PTO/SB/08B (10-01)

Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449B/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet	3	of	4
-------	---	----	---

Complete if Known

Application Number	09/963,983
Filing Date	09/25/2001
First Named Inventor	Zumbrunnen
Group Art Unit	1723
Examiner Name	unknown
Attorney Docket Number	CXU-336PA

RECEIVED
FEB 15 2002
TC 1700

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials ¹	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
DM	N	R.I. Danescu and D.A. Zumbrunnen -- "COMPUTATIONAL SIMULATION OF THE IN SITU FORMATION IN MELTS OF ELECTRICAL PATHWAYS AMONG PARTICLES TRANSPORTED BY TWO DIMENSIONAL CHAOTIC MIXING" Proceedings of ASME Heat Transfer Division Vol. 4, 1998 Entire document	
	O	R.I. Danescu and David Zumbrunnen -- "CREATION OF ELECTRICALLY CONDUCTING PLASTICS BY CHAOTIC MIXING" ANTEC Conference: 1998	
	P	R.I. Danescu -- "CHAOTIC MIXING AS A MEANS TO CREATE ELECTRICALLY CONDUCTING NETWORKS IN PLASTICS" Doctorial Dissertation Entire document	
	Q	Michael Ellison -- "CHAOS IN POLYMER PHASE TRANSITIONS" National Textile Center Annual Report: August 1995 Entire document	
	R	Michael Ellison, Bridgette Gomillion, David Zumbrunnen and Jiong Wang -- "CHAOTIC MIXING IN EXTRUSION-BASED MELT SPINNING OF FIBERS" National Textile Center Annual Report: 1997 Entire document	
	S	Michael Ellison, Bridgette Gomillion, David Zumbrunnen and Jiong Wang -- "CHAOTIC MIXING IN EXTRUSION-BASED MELT SPINNING OF FIBERS" National Textile Center Annual Report: Nov. 1998 Entire document	
	T	Michael Ellison, Bridgette Gomillion, David Zumbrunnen and Jiong Wang -- "CHAOTIC MIXING IN EXTRUSION-BASED MELT SPINNING OF FIBERS" National Textile Center Annual Report: Nov. 1999 Entire document	
	U	B.L. Gomillion, J. Wang, M.S. Ellison and D.A. Zumbrunnen -- "THREE-DIMENSIONAL CONTINUOUS CHAOTIC MIXING TO PRODUCE STRUCTURED FIBER COMPOSITS IN-SITU" Abstract from papers for 215th ACS National Meeting March 1998 -- Entire document	
	V	Sadhan C. Jana, Guy Metcalfe and J.M. Ottino -- "EXPERIMENTAL AND COMPUTATIONAL STUDIES OF MIXING IN COMPLEX STOKES FLOWS: THE VORTEX MIXING FLOW AND MULTICELLULAR CAVITY FLOWS" J. Fluid Mech. Vol. 269, 1994 -- Entire document	
	W	H.A. Kusch and J.M. Ottino -- "EXPERIMENTS ON MIXING IN CONTINUOUS CHAOTIC FLOWS" J. Fluid Mech. 1992 Entire document	
DM	X	D.F. Zhang and D. A. Zumbrunnen -- "CHAOTIC MIXING OF TWO SIMILAR FLUIDS IN THE PRESENCE OF A THIRD DISSIMILAR FLUID" AIChE Journal, Vol. 42, No. 12: December 1996 Entire document	/

Examiner Signature	<i>S. M. Nelson</i>	Date Considered	<i>05 Aug 2003</i>
--------------------	---------------------	-----------------	--------------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.



Complete if Known

(supplemental)
(use as many sheets as necessary)

Application Number	09/963,983
Filing Date	09/25/2001
First Named Inventor	Zumbrunn
Art Unit	1723
Examiner Name	unknown
Attorney Docket Number	CXU-336PA

U.S. PATENT DOCUMENTS						
Examiner Initials*	Cite No. 1	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code (if known) 2			
8m	AA	US-	5,798,077	08-25-1998	Womer et al.	entire document
	BB	US-	5,921,679	07-13-1999	Muzzio et al.	entire document
	CC	US-	5,816,698	10-06-1998	Durina et al.	entire document
	DD	US-	3,426,754	02-11-1969	Bierenbaum et al.	entire document
	EE	US-	3,558,764	01-26-1971	Isaacson et al.	entire document
	FF	US-	3,679,538	07-25-1972	Druin et al.	entire document
	GG	US-	3,801,404	04-02-1974	Druin et al.	entire document
	HH	US-	3,801,692	04-02-1974	Zimmerman	entire document
	II	US-	4,257,997	03-24-1981	Soehngen et al.	entire document
	JJ	US-	4,138,459	02-06-1979	Brazinsky et al.	entire document
	KK	US-	3,843,761	10-22-1974	Bierenbaum et al.	entire document
on	LL	US-	4,833,172	05-23-1989	Schwarz et al.	entire document
	MM	US-	5,173,235	12-22-1992	Kamei et al.	entire document
		US-				
		US-				
		US-				
		US-				
		US-				
		US-				
		US-				

RECEIVED
MAR 11 2002
TC 1-

[illegible]

05 Aug 2003

¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO:** Assistant Commissioner for Patents, Washington, DC 20231.

#3 p.2 +

PTO/SB/08B (10/01)

Approved for use through 10/31/2002. OMB 0851-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

O I P E
MAR 05 2002
PATENT & TRADEMARK OFFICE

Substitute for form 1449B/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Supplemental)

(use as many sheets as necessary)

Sheet 2 of 3

Complete if Known

Application Number	09/963,983
Filing Date	09/25/2001
First Named Inventor	Zumbrunnen
Group Art Unit	1723
Examiner Name	unknown
Attorney Docket Number	CXU-336PA

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials [*]	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
Em	NN	Y.H. LIU and D.A. ZUMBRUNNEN -- "Toughness Enhancement In Blends Of Dissimilar Polymers Due to the In-Situ Formation By Chaotic Mixing Of Fine Scale Extended Structures At Low Minor Phase Concentrations" MD-Vol. 80 ASME 1997 -- Entire Document	
	OO	D.A. ZUMBRUNNEN and Y.H. LIU -- Abstract and photomicrographs Page 202 Vol. 119 Transactions of the ASME May 1997 Entire Document	
	PP	Y.H. LIU and D.A. ZUMBRUNNEN -- "Emergence of Fibrillar Composites Due To Chaotic Mixing Of Molten Polymers" ANTEC Conference 1995 Entire Document	
	QQ	YUHUI LIU -- "Property Enhancements Due To The In-Situ Formation Of Fine Scale Extended Structures By Chaotic Mixing Of Polymer Melts" Doctoral Dissertation Clemson University 1997	
	RR	K.C. MILES, Y.H. LIU, and D.A. ZUMBRUNNEN -- "Direct Synthesis Of Very Fine-Scale Composite Materials By Chaotic Mixing Of Molten Precursors" HTD-Vol. 289 Thermal Processing Of Materials: Thermo-Mechanics, Controls and Composites ASME 1994 -- Entire document	
	SS	D.F. ZHANG and D.A. ZUMBRUNNEN -- "Chaotic Mixing of Two Similar Fluids In The Presence of A Third Dissimilar Fluid" ANTEC Conference 1996 Entire Document	
	TT	D.F. ZHANG and D.A. ZUMBRUNNEN -- "Influences Of Fluidic Interfaces On The Formation Of Fine Scale Structures By Chaotic Mixing" Vol. 118, Transactions of the ASME March 1996 Entire Document	
	UU	D.F. ZHANG and D. A. ZUMBRUNNEN -- "Influences Of Fluidic Interfaces During Formation Of Fine-Scale Composites By Chaotic Mixing Of Melts" HTD-Vol. 306, ASME 1995 National Heat Transfer Conference Entire Document	
	VV	D.F. ZHANG, D.A. ZUMBRUNNEN and Y.H. LIU -- "Morphology Development In Shear Flows Of Straight and Folded Molten Fibers" AIChE Journal Vol. 44, February 1998 Entire Document	
	WW	D. A. ZUMBRUNNEN -- "Composite Materials Evolved From Chaos" Proceedings of the 3rd Experimental Chaos Conference August 21-23, 1995 Entire Document	
Em	XX	D.A. ZUMBRUNNEN -- "Microstructures and Physical Properties Of Composite Materials Evolved From Chaos" Proceedings of the 4th Experimental Chaos Conference August 6-8, 1997 Entire Document	

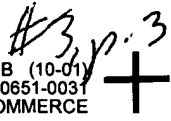
RECEIVED
MAR 11 2002
TC 1700

Examiner Signature: *Em* Date Considered: 05 Aug 2003

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.



PTO/SB/08B (10-01)
Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.**